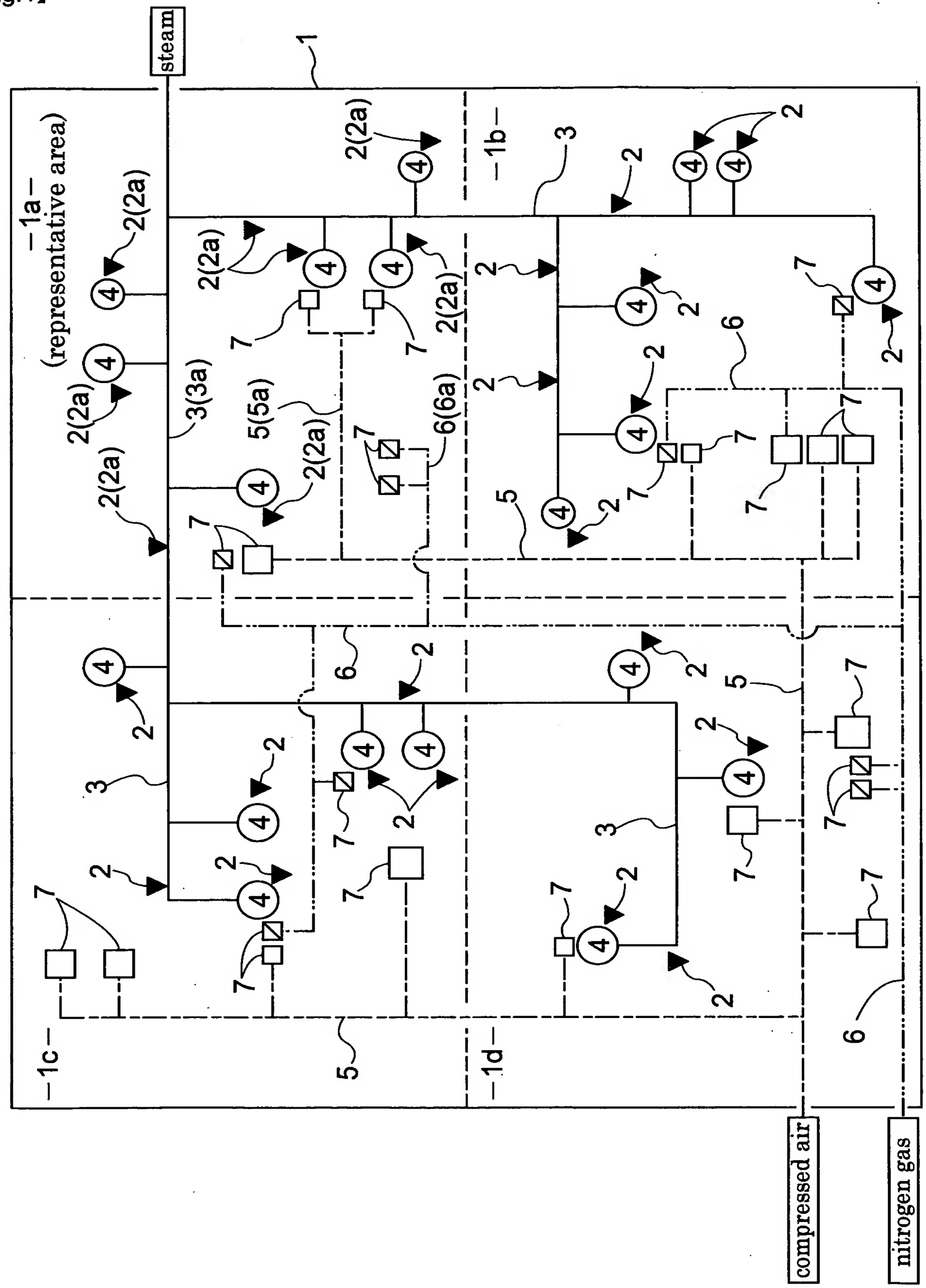
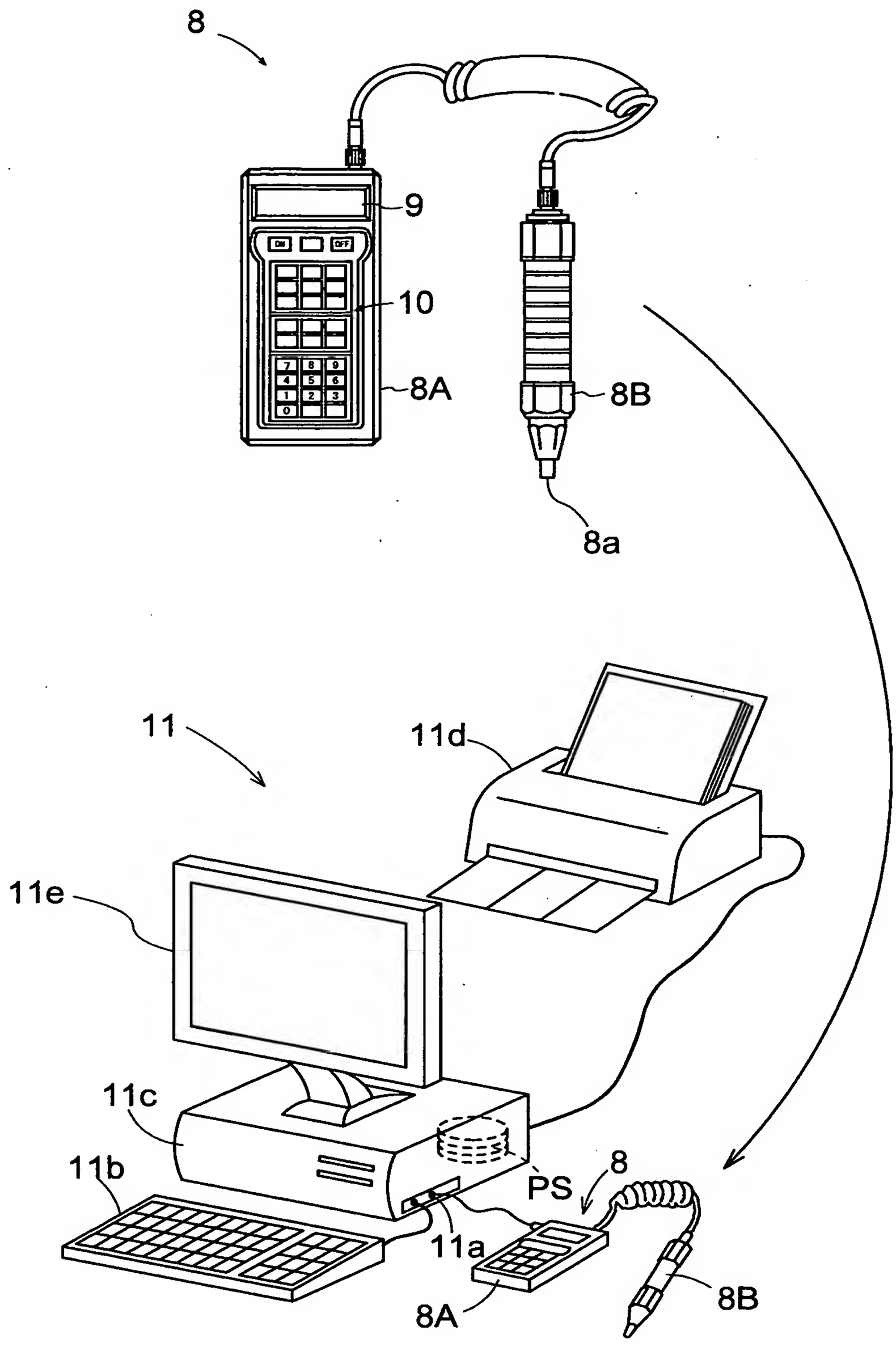
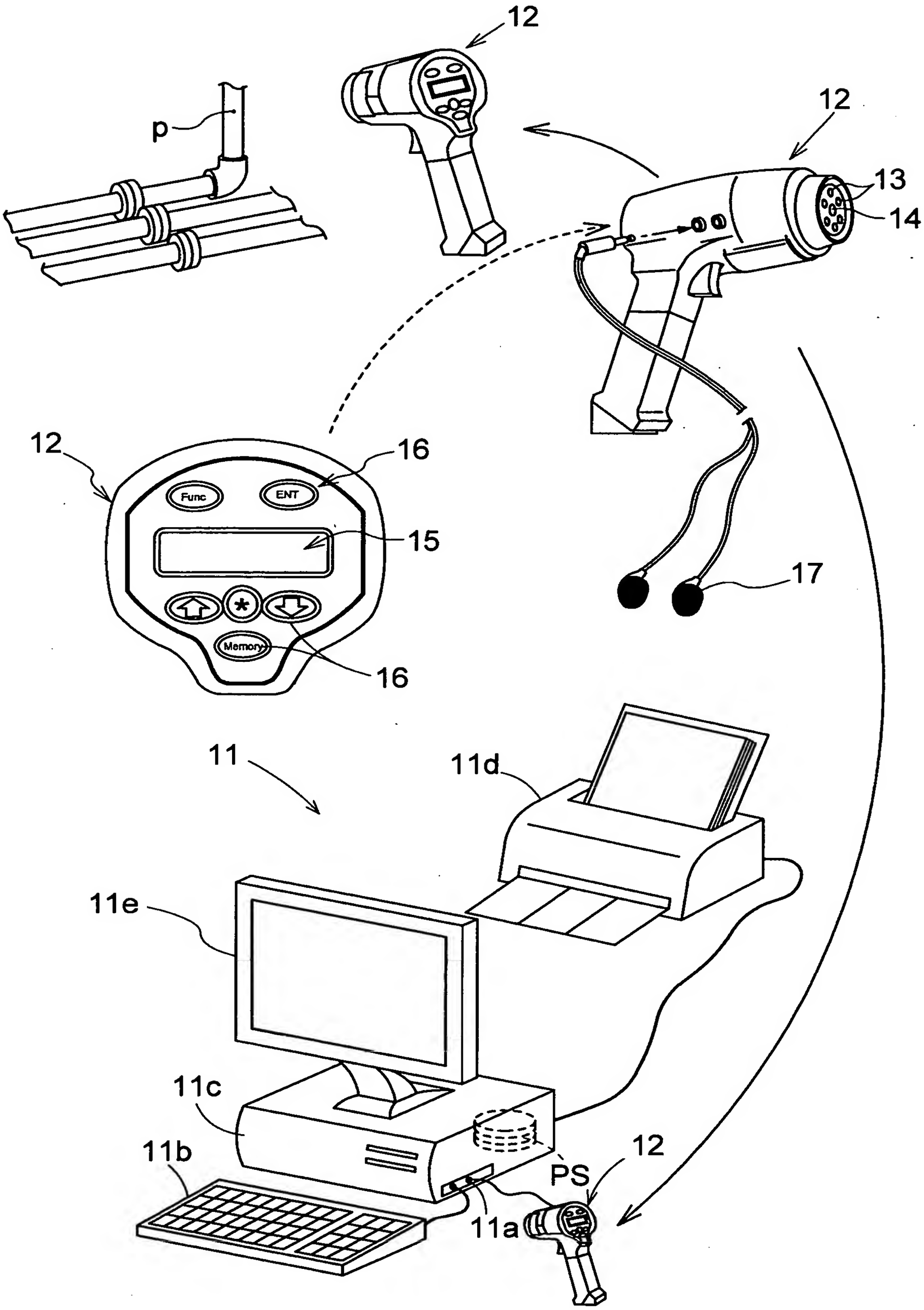
【Fig.1】


steam
1
—1a—
(representative area)
—1b—
—1c—
—1d—
2
2(2a)
3
3(3a)
4
5
5(5a)
6
6(6a)
7
compressed air
nitrogen gas

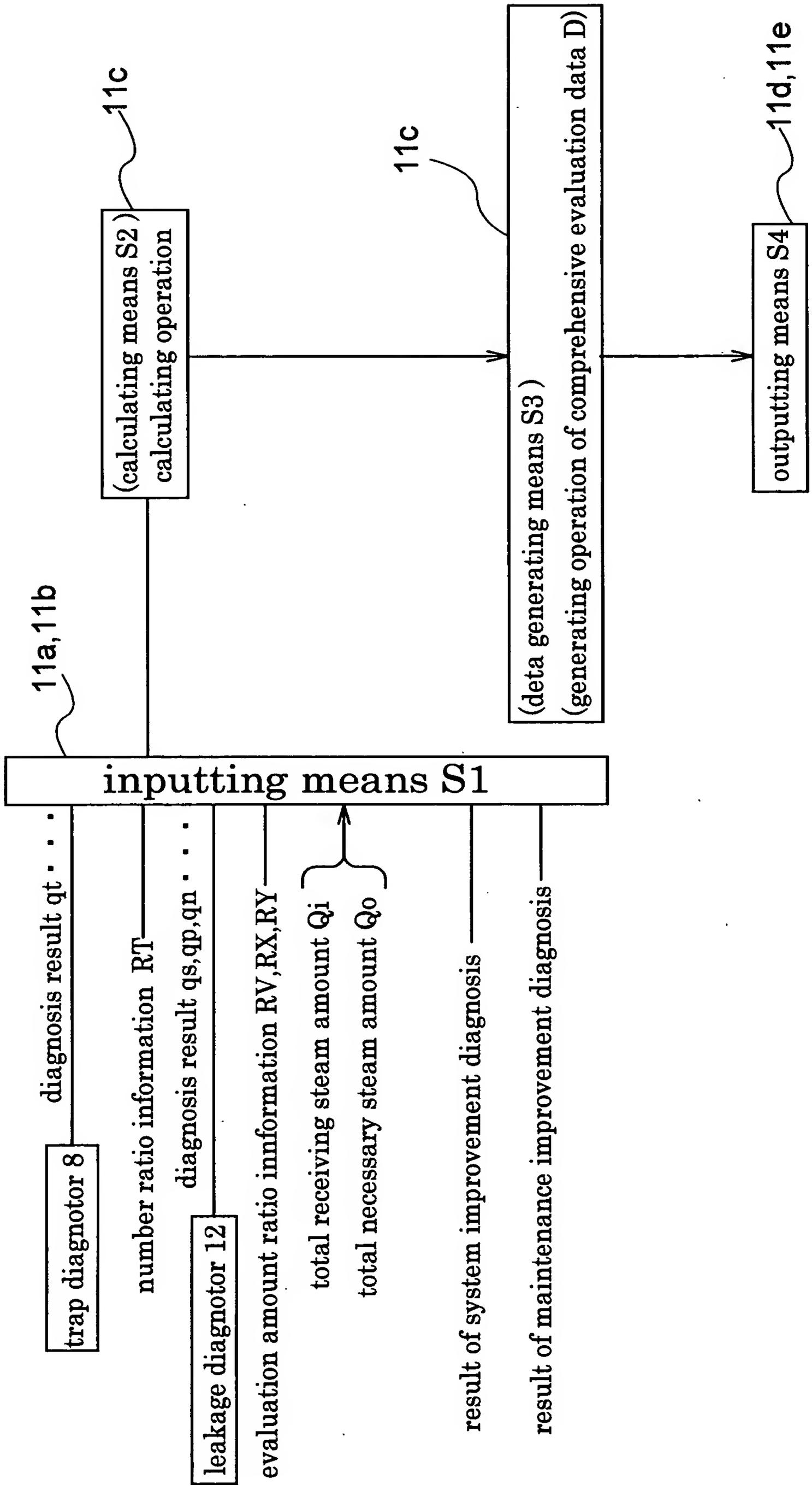
【Fig.2】



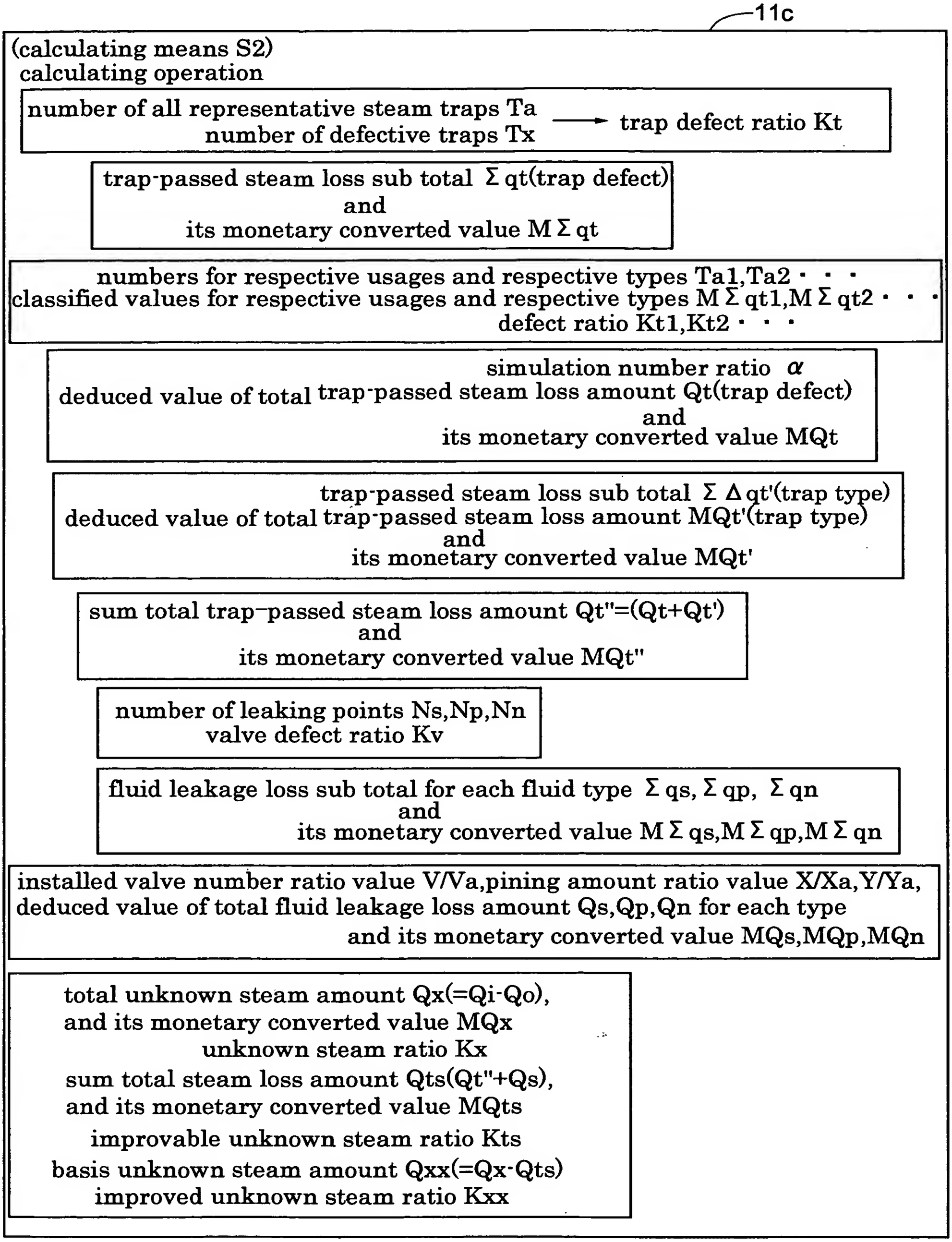
【Fig.3】


12
p
12
13
14
12
16
Func
ENT
15
17
*
Memory
16
11
11d
11e
11c
11b
12
PS
11a

【Fig.4】


11c
(calculating means S2)
calculating operation
11c
(deta generating means S3)
(generating operation of comprehensive evaluation data D)
11d,11e
outputting means S4
11a,11b
inputting means S1
diagnosis result qt · · ·
number ratio information RT
diagnosis result qs,qp,qn · · ·
evaluation amount ratio innformation RV,RX,RY
total receiving steam amount Qi
total necessary steam amount Qo
result of system improvement diagnosis
result of maintenance improvement diagnosis
trap diagnotor 8
leakage diagnotor 12

【Fig.5】


11c
(calculating means S2)
calculating operation
number of all representative steam traps Ta
number of defective traps Tx
trap defect ratio Kt
trap-passed steam loss sub total Σ qt(trap defect)
and
its monetary converted value MΣqt
numbers for respective usages and respective types Ta1,Ta2・・・
classified values for respective usages and respective types MΣqt1,MΣqt2・・・
defect ratio Kt1,Kt2・・・
simulation number ratio α
deduced value of total trap-passed steam loss amount Qt(trap defect)
and
its monetary converted value MQt
trap-passed steam loss sub total Σ Δqt'(trap type)
deduced value of total trap-passed steam loss amount MQt'(trap type)
and
its monetary converted value MQt'
sum total trap-passed steam loss amount Qt"=(Qt+Qt')
and
its monetary converted value MQt"
number of leaking points Ns,Np,Nn
valve defect ratio Kv
fluid leakage loss sub total for each fluid type Σ qs, Σ qp, Σ qn
and
its monetary converted value MΣqs,MΣqp,MΣqn
installed valve number ratio value V/Va,pining amount ratio value X/Xa,Y/Ya,
deduced value of total fluid leakage loss amount Qs,Qp,Qn for each type
and its monetary converted value MQs,MQp,MQn
total unknown steam amount Qx(=Qi-Qo),
and its monetary converted value MQx
unknown steam ratio Kx
sum total steam loss amount Qts(Qt"+Qs),
and its monetary converted value MQts
improvable unknown steam ratio Kts
basis unknown steam amount Qxx(=Qx-Qts)
improved unknown steam ratio Kxx

【Fig.6】

report

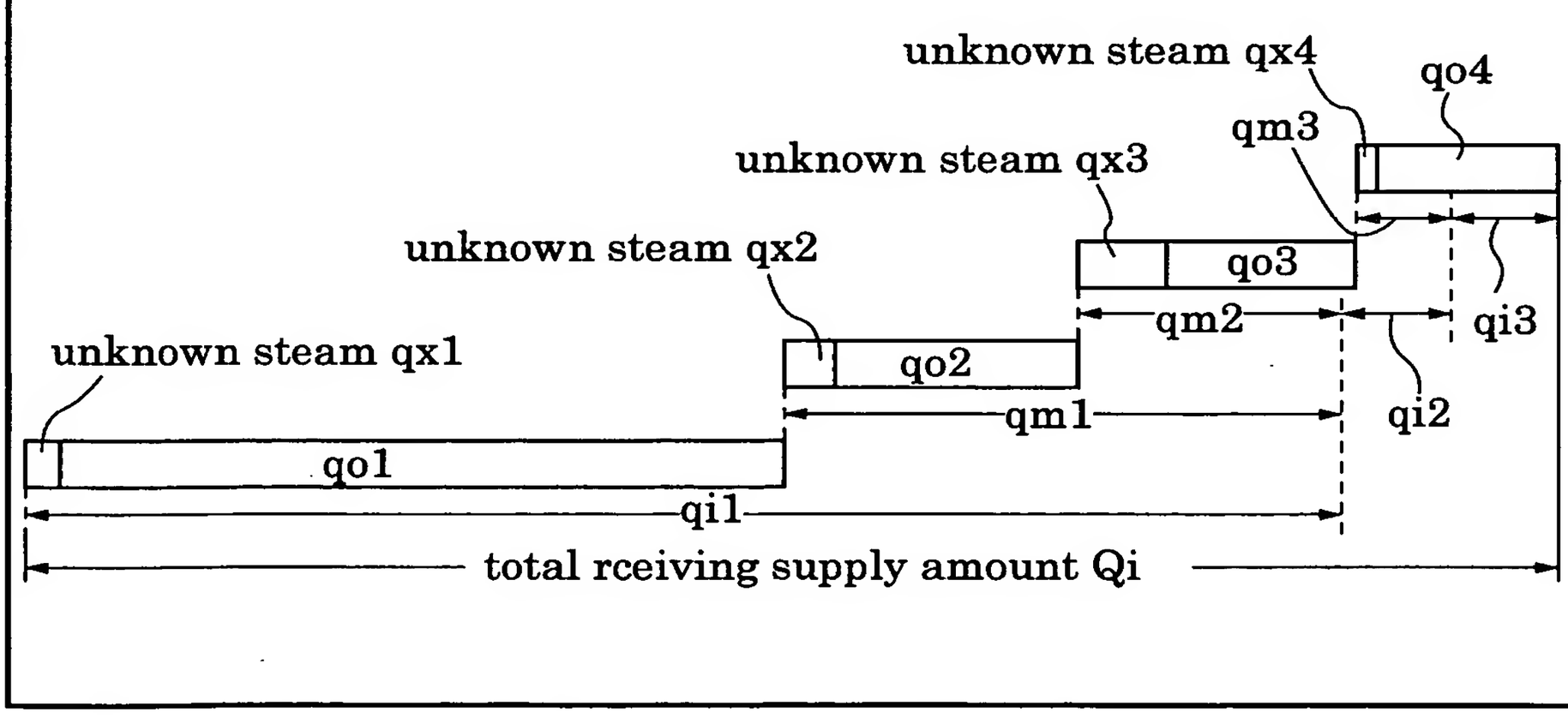
date of diagnoses

day / month / year

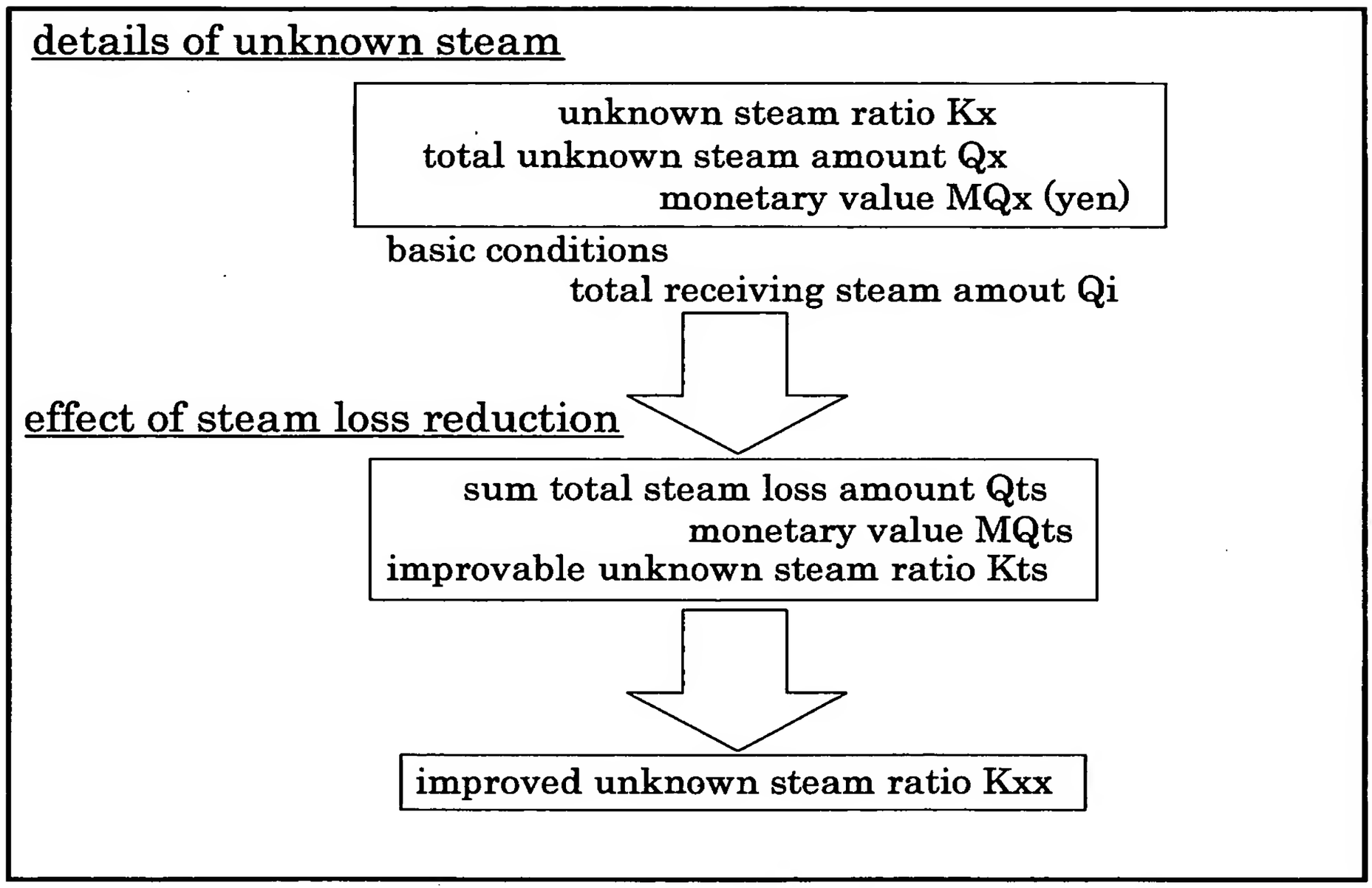
【Fig.7】

steam input/output

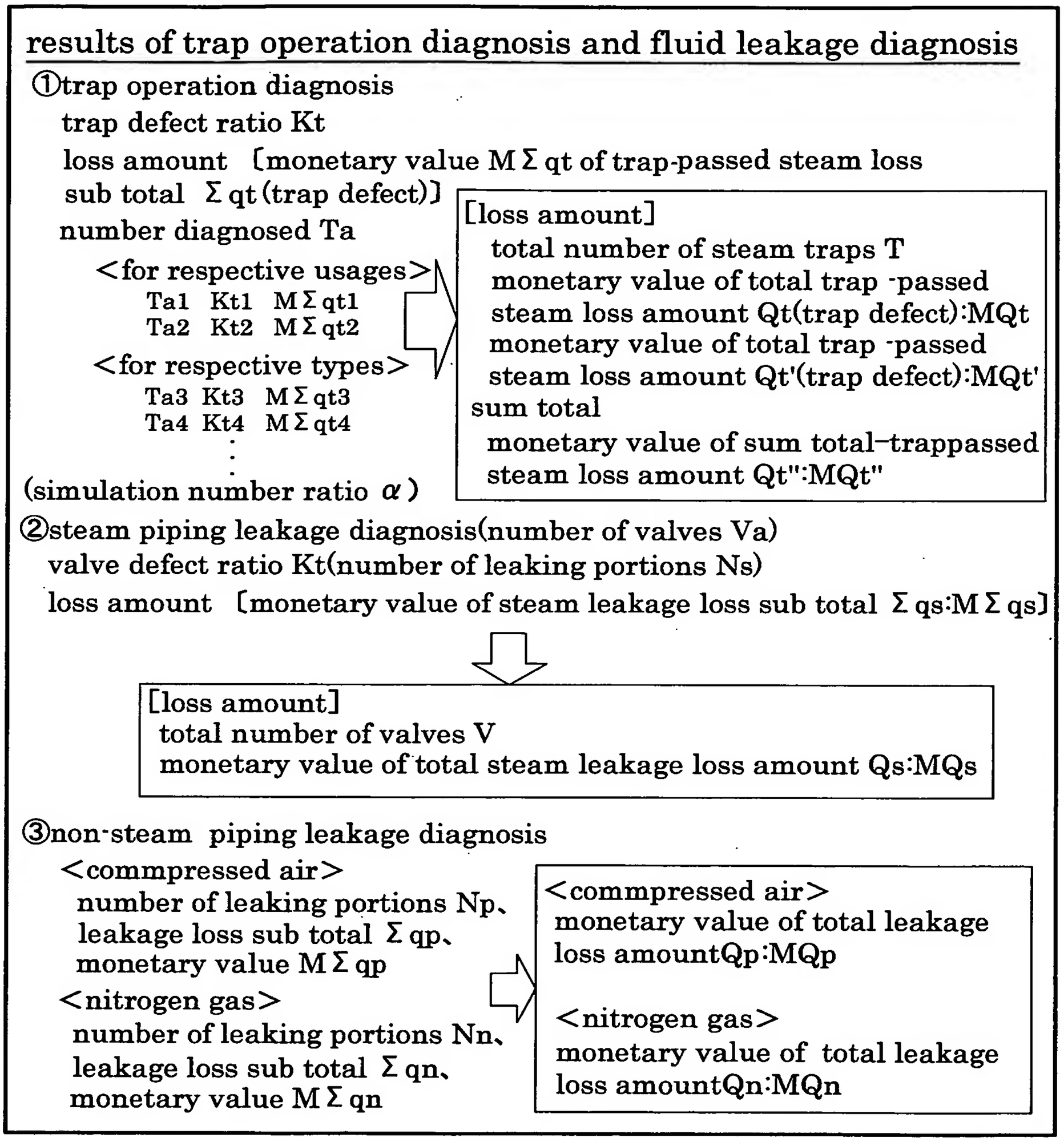
total receiving steam amount Qi=qi1+qi2+qi3
total necessary steam amount Qo=qo1+qo2+qo3+qo4
total unknown steam amount Qx=qx1+qx2+qx3+qx4=(Qi-Qo)



【Fig.8】


details of unknown steam
unknown steam ratio Kx
total unknown steam amount Qx
monetary value MQx (yen)
basic conditions
total receiving steam amout Qi
effect of steam loss reduction
sum total steam loss amount Qts
monetary value MQts
improvable unknown steam ratio Kts
improved unknown steam ratio Kxx

【Fig.9】


results of trap operation diagnosis and fluid leakage diagnosis
①trap operation diagnosis
trap defect ratio Kt
loss amount 〔monetary value MΣqt of trap-passed steam loss
sub total Σqt(trap defect)〕
number diagnosed Ta
<for respective usages>
Ta1 Kt1 MΣqt1
Ta2 Kt2 MΣqt2
<for respective types>
Ta3 Kt3 MΣqt3
Ta4 Kt4 MΣqt4
(simulation number ratio α)
[loss amount]
total number of steam traps T
monetary value of total trap -passed
steam loss amount Qt(trap defect):MQt
monetary value of total trap -passed
steam loss amount Qt'(trap defect):MQt'
sum total
monetary value of sum total−trappassed
steam loss amount Qt":MQt"
②steam piping leakage diagnosis(number of valves Va)
valve defect ratio Kt(number of leaking portions Ns)
loss amount 〔monetary value of steam leakage loss sub total Σqs:MΣqs〕
[loss amount]
total number of valves V
monetary value of total steam leakage loss amount Qs:MQs
③non-steam piping leakage diagnosis
<commpressed air>
number of leaking portions Np、
leakage loss sub total Σqp、
monetary value MΣqp
<nitrogen gas>
number of leaking portions Nn、
leakage loss sub total Σqn、
monetary value MΣqn
<commpressed air>
monetary value of total leakage
loss amountQp:MQp
<nitrogen gas>
monetary value of total leakage
loss amountQn:MQn

【Fig.10】

result of system improvement diagnosis

① system improvement proposal 1

monetary value of effect Ma1
cost Ha1

② system improvement proposal 2

monetary value of effect Ma2
cost Ha2

result of maintenance improvement diagnosis

① method improvement proposal 1

monetary value of effect Mb1
cost Hb1

② method improvement proposal 2

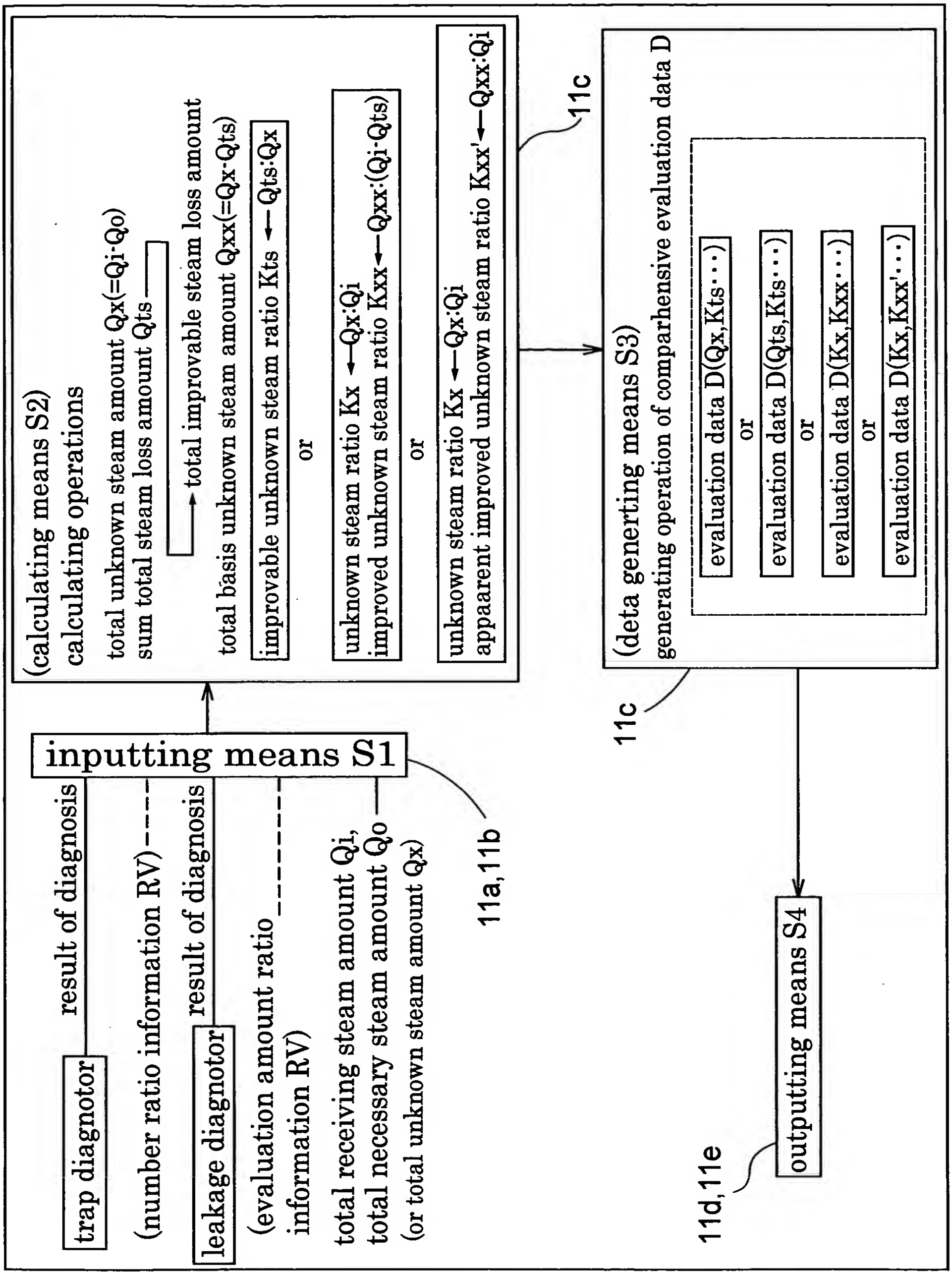
monetary value of effect Mb2
cost Hb2

【Fig.11】

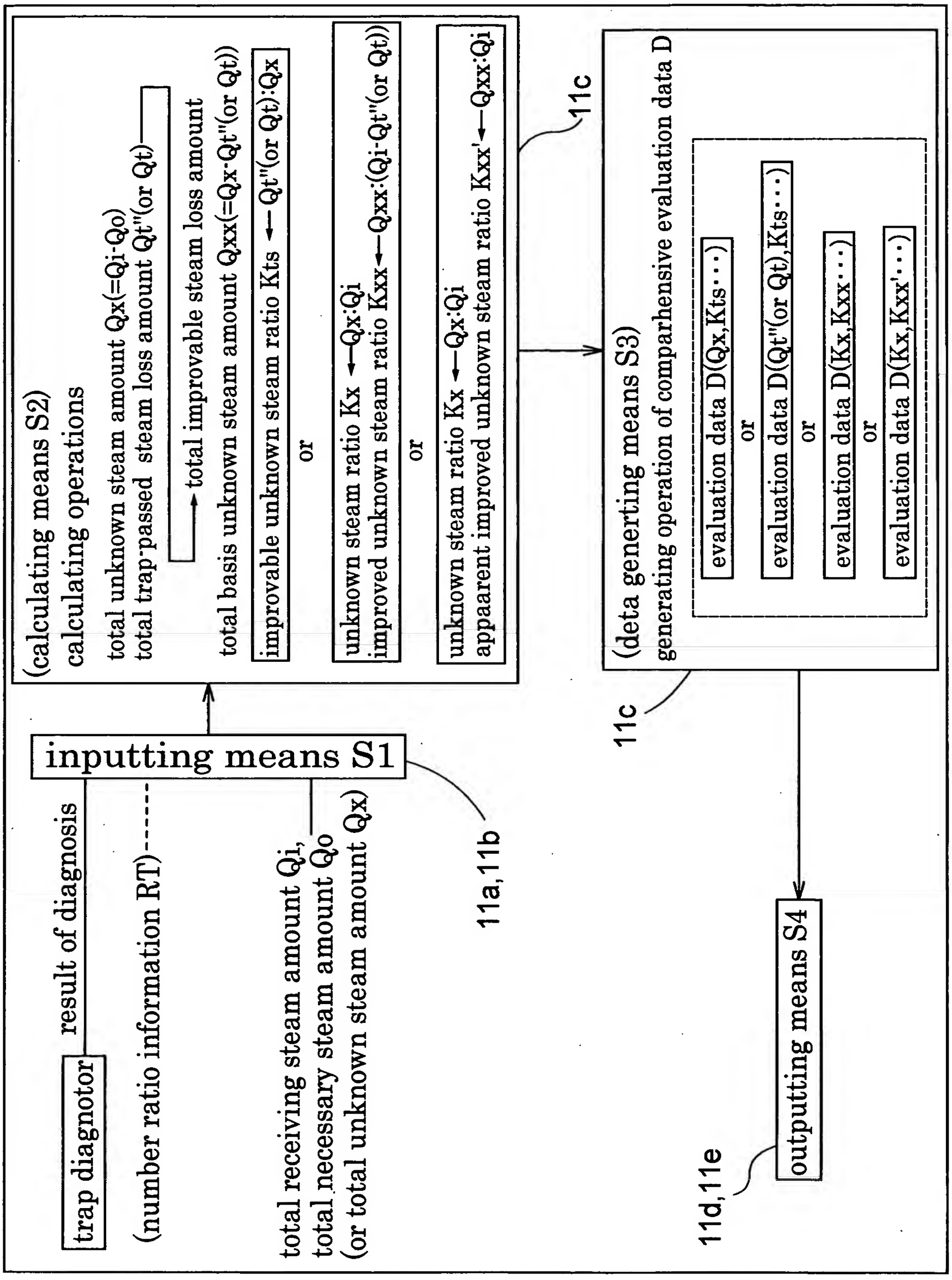
conclusion of diagnoses

〔steam〕
effect:
monetary value MQts of sum total steam loss amount Qts
cost:Hts
〔non-steam fluids〕
<compressed air>
effect:
monetary value MQp of total leakage loss amount Qp for compressed air
cost:Hp
<nitrogen gas>
effect:
monetary value MQn of total fluid leakage loss amount Qn for nitrogen gas
cost:Hn
〔system〕
effect:
monetary value ΣMa
cost: ΣHa
〔maintenance〕
effect:
monetary value ΣMb
cost: ΣHb

【Fig.12】


inputting means S1
result of diagnosis
trap diagnotor
(number ratio information RV)
result of diagnosis
leakage diagnotor
(evaluation amount ratio information RV)
total receiving steam amount Qi,
total necessary steam amount Qo
(or total unknown steam amount Qx)
11a,11b
11d,11e
outputting means S4
11c
(deta generting means S3)
generating operation of comparhensive evaluation data D
evaluation data D(Qx,Kts・・・)
or
evaluation data D(Qts,Kts・・・)
or
evaluation data D(Kx,Kxx'・・・)
or
evaluation data D(Kx,Kxx'・・・)
11c
(calculating means S2)
calculating operations
total unknown steam amount Qx(=Qi-Qo)
sum total steam loss amount Qts
total improvable steam loss amount Qxx(=Qx-Qts)
total basis unknown steam amount Qxx(=Qx-Qts)
improvable unknown steam ratio Kts ← Qts:Qx
or
unknown steam ratio Kx ← Qx:Qi
improved unknown steam ratio Kxx ← Qxx:(Qi-Qts)
or
unknown steam ratio Kx ← Qx:Qi
appaarent improved unknown steam ratio Kxx' ← Qxx:Qi

【Fig.13】


trap diagnotor
result of diagnosis
(number ratio information RT)
total receiving steam amount Qi,
total necessary steam amount Qo
(or total unknown steam amount Qx)
inputting means S1
11a,11b
11d,11e
outputting means S4
(calculating means S2)
calculating operations
total unknown steam amount Qx(=Qi-Qo)
total trap-passed steam loss amount Qt"(or Qt)
total improvable steam loss amount Qxx(=Qx-Qt"(or Qt))
total basis unknown steam amount Qx
improvable unknown steam ratio Kts ← Qt"(or Qt):Qx
or
unknown steam ratio Kx ← Qx:Qi
improved unknown steam ratio Kxx ← Qxx:(Qi-Qt"(or Qt))
or
unknown steam ratio Kx ← Qx:Qi
appaarent improved unknown steam ratio Kxx'← Qxx:Qi
11c
(deta genertng means S3)
generating operation of comparhensive evaluation data D
evaluation data D(Qx,Kts・・・)
or
evaluation data D(Qt"(or Qt),Kts・・・)
or
evaluation data D(Kx,Kxx・・・)
or
evaluation data D(Kx,Kxx'・・・)
11c